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FOREST SERVICE,
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SILVICAL LEAFLET 2.

PORT ORFORD CEDAR.

Chamaecyparis lawsoniana (Murr.) Parl.

Port Orford cedar is highly valued on the Pacific coast both for its excellent lumber and for its beauty as a decorative tree. It is not abundant, since its range is very limited, and it does not form pure stands. In the forest where it grows, its heavy foliage plays an important silvicultural part in clearing the trunks of associated species and preserving good soil conditions. The great demand for its lumber threatens to eliminate Port Orford cedar as an important part of the forest unless measures are taken to insure a satisfactory reproduction. It has been introduced into Europe, where it is planted with good results, usually in mixture with beech.

RANGE AND OCCURRENCE.

The natural range of Port Orford cedar is restricted to a narrow belt bordering the coast of southern Oregon and northern California. It reaches its northern limit at Coos Bay, Oregon. Its southern limit extends into the belt of coast redwoods, as far as Humboldt County, Cal. Though it occurs chiefly within 40 miles of the coast, a few scattering stands exist among the Siskiyou Mountains and at the head of the Sacramento River in California, more than twice this distance inland. It is most abundant north of the Rogue River on the coast of Oregon, and reaches its largest size on west slopes of the Coast Range foothills at from 3 to 15 miles from the ocean. From near sea level at places on the Oregon coast it ranges in altitude to 5,000 feet on the slopes of the Coast Mountains and on the southern flanks of Mount Shasta. The tree is not very particular in its choice of locality, but is found on sand dunes along the coast, on the high, dry, sandy ridges and slopes of the coastal hills, and on the banks of streams and lakes. In the mountains it grows best in narrow and moist, but warm and sunny ravines.

CLIMATE.

The climate within the range of Port Orford cedar is characterized by moderate temperatures, heavy precipitation with slight snowfall, a high degree of humidity, and a large proportion of cloudy days. On the

coast the temperature ranges between 10° and 95° F., and the precipitation between 30 and 100 inches, with an average of about 56 inches. Increase in altitude is attended by greater seasonal and daily range of temperature and by larger proportionate snowfall, but the relatively low altitudinal range of Port Orford cedar keeps it within the modifying influence of the ocean winds.

The tree is fairly hardy, and has been successfully cultivated in Great Britain and Europe in a more severe climate than that of its natural habitat. It is, however, sensitive to rapid changes in temperature and humidity, and suffers from prolonged drought, especially after a period of rapid growth. Except in its early youth it is frost hardy, and is more resistant to late than to early frosts. Its slender top is easily broken by heavy snows.

HABIT.

When grown in the forest Port Orford cedar has a straight, cylindrical stem, clear of branches for over half its length, and may attain a maximum height of over 200 feet and a diameter of from 6 to 12 feet. When grown in the open, on the other hand, it has a relatively short, rapidly tapering stem, and a broadly conical crown with branches persisting close to the ground. The leader is slender, drooping, and characteristically inclined in the direction of the prevailing wind. The foliage is persistent for three or four years.

The root system consists of a few strong heart roots, with a great number of very fine fibrous roots which dry rapidly and die when exposed to the air in transplanting.

ASSOCIATED SPECIES.

Port Orford cedar does not form pure stands of large size, but is commonly scattered through the forest either as single trees or in small groups. Near Port Orford, on the coast of southern Oregon, it occurs abundantly in a mixed forest of giant arborvitæ, Sitka spruce, lowland fir, western hemlock, and Douglas fir. Next the coast it often gives way to Sitka spruce and lowland fir, sharing somewhat higher altitudes with Douglas fir and western hemlock. On the eastern slope of the coast mountains in Oregon, and at altitudes of over 1,700 feet on the western slope, it is usually replaced by giant arborvitæ. It is sometimes sparingly represented on relatively dry and sunny exposures in the sugar and yellow pine forests. In northwestern California it grows in swampy situations near the sea, associated with lowland fir, western hemlock, Sitka spruce, and occasionally redwood, Douglas fir, and laurel, but rarely forms any considerable portion of the forest.

SOIL AND MOISTURE.

Port Orford cedar is not exacting in soil requirements, yet for its best development the soil should be moist or fresh, well-drained, and

neither dry nor swampy. In Oregon it thrives on sandy soils, and even grows in the dry soils of high ridges, while in the northwestern coast region of California it makes good growth in swampy situations near the sea. Under cultivation it does well in almost every kind of soil except wet and cold peat.

TOLERANCE.

Port Orford cedar is tolerant of shade throughout its life, and especially during the early stages of its development. While it will stand heavy shading for a long time when young, it will also thrive in the open in regions of constant atmospheric humidity. Its branchy habit and heavy foliage are evidences of its tolerance, though under the influence of side shade in the forest it produces a clear, straight stem of considerable length.

REPRODUCTION.

When about 12 years old Port Orford cedar begins to bear seed and continues to bear profusely each year up to an advanced age. Its seeds are small and light, with broad, thin wings, and may be carried far by the wind. Logged and burned-over areas are good seed beds, and the species usually contributes to the restocking of clearings within its range.

Port Orford cedar can readily be propagated by cuttings. It can also be raised from seed if certain precautions are observed in sowing them and in caring for the seedlings. In general, the same methods are used in raising seedlings of Port Orford cedar as for other conifers. Since the seed does not retain its germinating power long, only fresh seed should be used. At best, only a small percentage germinates. The seed should be sowed rather thickly and covered lightly in well-prepared beds of light, sandy loam, slightly moistened, and mulched to prevent evaporation. Upon the first appearance of the seedlings, in about two weeks, the mulch should be removed and the beds partially shaded during the first summer. The seedlings should be left in the seed beds for two years, and protected from drought and from too rapid changes of temperature. At the end of this time they should be set out in transplant rows for two or three years, when they will be ready for planting in the permanent site.

